





Input Set : N:\Crf3\RULE60\09665358.raw
Output Set: N:\CRF4\09202002\1665358.raw

SEQUENCE LISTING

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3 (1) GENERAL INFORMATION:
             (i) APPLICANT: Stojiljkovic, Igor
                            So, Magdalene
      7
                            Hwa, Vivian
                            Heffron, Fred
      8
      9
                            Nassif, Xavier
            (ii) TITLE OF INVENTION: A Novel Bacterial Hemoglobin Receptor Gene and Uses
     11
           (iii) NUMBER OF SEQUENCES: 18
     13
     15
            (iv) CORRESPONDENCE ADDRESS:
     16
                  (A) ADDRESSEE: Banner & Allegretti, Ltd.
     17
                  (B) STREET: 10 South Wacker Drive, Suite 3000
                  (C) CITY: Chicago
     18
     19
                  (D) STATE: Illinois
                                                         ENTERED
                  (E) COUNTRY: USA
     20
                  (F) ZIP: 60606
     21
     23
             (V) COMPUTER READABLE FORM:
                  (A) MEDIUM TYPE: Floppy disk
     25
                  (B) COMPUTER: IBM PC compatible
     26
                  (C) OPERATING SYSTEM: PC-DOS/MS-DOS
     27
                  (D) SOFTWARE: PatentIn Release #1.0, Version #1.25
     29
            (vi) CURRENT APPLICATION DATA:
C--> 30
                  (A) APPLICATION NUMBER: US/09/665,358
C--> 31
                  (B) FILING DATE: 19-Sep-2000
     32
                  (C) CLASSIFICATION:
     34
           (vii) PRIOR APPLICATION DATA:
     35
                  (A) APPLICATION NUMBER: US/08/537,361
     36
                  (B) FILING DATE: 02 OCT 1995
     39
          (viii) ATTORNEY/AGENT INFORMATION:
     40
                  (A) NAME: Noonan, Kevin E
                  (B) REGISTRATION NUMBER: 35,303
     41
     42
                  (C) REFERENCE/DOCKET NUMBER: 94,784-A
            (ix) TELECOMMUNICATION INFORMATION:
     44
                  (A) TELEPHONE: 312-715-1000
     45
     46
                  (B) TELEFAX: 312-715-1234
     47
                  (C) TELEX: 810-221-8317
        (2) INFORMATION FOR SEQ ID NO: 1:
     50
     52
             (i) SEQUENCE CHARACTERISTICS:
     53
                  (A) LENGTH: 2373 base pairs
     54
                  (B) TYPE: nucleic acid
     55
                  (C) STRANDEDNESS: single
     56
                  (D) TOPOLOGY: linear
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(ii) MOLECULE TYPE: cDNA

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60 (ix) FERTURE: 61 (A) NAME/KEY: CDS 62 (B) LOCATION: 12373 64 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1: 66 ATG AAA CCA TTA CAA ATG CTC CCT ATC GCC GGG CTG GTC GGC AGT ATT 67 Met Lys Pro Leu Gln Met Leu Pro Ile Ala Ala Leu Val Gly Ser Ile 68 1 5 10 15 70 TTC GGC AAT CCG GTC TTG GCA GCA GAT GAA GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Asp Glu Ala Ala Thr Glu Thr Thr 72 20 3 30 74 CCC GTT AAG GCA GAG ATA AAA GCA GTG CGC GTT AAA GGT CAC GCA AAT 75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn 76 35 40 78 GCC CCT GCC GCT GTG GAA CGC GTC AAC CTT AAC CGT ACA ACA GAA 79 Ala Pro Ala Ala Val Glu Arg Val Asn Leu Asn Arg Ile Lys Gln Glu 80 50 5 60 82 ATG ATA CGC GAC AAT AAA GAC TTG GC CGT TA CAC CGT ATC CACC GAT GAA 80 TS ATA CGC GAC AAT AAA GAC TTG GC CG TTT TCC ACC GAT GTC GGC 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 70 75 86 TTG AGC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GCT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 8 85 90 90 GAA GGC AAC GGT GT GGC GGT GAC ACT AAA AGC TTT AGC ACC TTO AAC 95 Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 96 Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 97 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr GC AAC TTC AAC CGT GAT 98 GAA GAC CGT GTC GGC GGC GAT GAC GAT GAC GAC TTT GCC GGC GTG 98 CGT TTG TCT ATC GAC CCC GAT ACT GCC GCT TAT GGC AAC TTC AAC AGC 96 TTG GCC GAC CTC TTT ACC GCC GTC TAT GGC AAC TTC AAC AGC ACC 97 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GCC GCC GAC CTC TTC CACC GAT CTC GTC GCC GTC GTC 98 CGT TTG TCT ATC GAC CCC GAT CTC GTT GTT GCC GCC GTT GTC 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GCC GCA GAC TTT TTC AAT ACC GCC GTT GTT GTT GTT GTG GC GGC GTT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 155 160 106 AAT TAC CAA ACC CTC GAA GGC CTT GTT GTTT GT		
62 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1: 66 ATG AAA CCA TTA CAA ATG CTC CCT ATC GCC GCC CTG GTC GGC AGT ATT 67 Met Lys Pro Leu Gln Met Leu Pro Ile Ala Ala Leu Val Gly Ser Ile 68 1 5 10 15 70 TTC GGC AAT CCG GTC TTG GCA GCA GAT GAA GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Asp GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Asp GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Asp GCA GCG GTT AAA GGT CAG CGC AAT 72 20 25 30 74 CCC GTT AAG GCA CAG ATA AAA GCA GTC CGC GTT AAA GGT CAG CGC AAT 75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn 76 35 40 45 45 46 47 47 48 47	60 (ix) FEATURE:	
64 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1: 66 ATG AAA CCA TTA CAA ATG CTC CCT ATC GCC GCG CTG GTC GGC AGT ATT 67 Met Lys Pro Leu Gln Met Leu Pro Ile Ala Ala Leu Val Gly Ser Ile 68 1 5 10 15 70 TTC GGC AAT CGG GTC TTG GGA GAC GAT GAA GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Asp Glu Ala Ala Thr Glu Thr Thr 72 20 25 30 74 CCC GTT AAG GGA GAG ATA AAA GCA GTG CGC GTT AAA GGT CAG CGC AAT 75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn 76 35 40 45 78 GGC GCT GGG GTC GTG GAA CCC GTC AAC CTT AAC GGT ATC AAA CAA GAA 79 Ala Pro Ala Ala Val Glu Arg Val Asn Leu Asn Arg Ile Lys Gln Glu 80 50 60 82 ATG ATA CGC GAC AAT AAA GAC TTG TGG CGC TAT TCA ACC GAT GTC GGC 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 80 85 TTG AGC GAC AGC GGC CAC CAA AAA GGC TTT GCT GTT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 85 90 GAA GGC AAC CGT GTC GGC GTG AAC CTT AAC CTG ATC 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 94 TCC GAA GAA AAC TCG CTG TA GCC GAT GTC AAC CTG GT 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 61 115 120 125 98 GGT TTG TCT ATC GAC CCG GAA CTG GGC CGC CTT TAT GGC AAC TTC AAC AGC TCG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Tyr Gly Asn Phe Asn Ser Ser 61 115 120 125 98 ATG LEU Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 130 135 140 102 GGC GCA GAC ACC TT TA ACC GCA ATT TCC GAC GAC GTG AAC 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Val 104 145 150 150 105 150 106 AAT TAC CAA AGC CTC GAA GCC GTA CGC AGT GTT GGC GGC GGT GTG 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 170 109 170 110 TTC GGC GTG ATG ATG AGC GGT GTG GAC GGC GGT GTG 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 104 145 150 160 105 167 117 TTC GGC GTG ATG ATG AGC GGC GGC AGT TTC CTG TTC GAC GAC GGC GAT 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 110 TTC GGC GTG ATG ATG ATG AGC GGC GGC	61 (A) NAME/KEY: CDS	
66 ATG ANA CCA TUR CAA ATG CTC CCT ATC GCC GCG CTG GTC GGC AGT ATT 67 Met Lys Pro Leu Gln Met Leu Pro Ile Ala Ala Leu Val Gly Ser Ile 68 1 5 10 15 96 70 TTC GGC AAT CCG GTC TTG GCA GCA GAT GAA GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Aep Glu Ala Ala The Glu Thr Thr 72 20 25 30 74 CCC GTT AAG GCA GAC ATA AAA GCA GTG GCA GCT GCA CGC GTC ACC 75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn 76 35 40 45 86 CCT GCG GCT GTG GAA CGC GTC AAC CTT AAC CGT ATC AAA CAA GAA 79 Ala Pro Ala Ala Val Glu Arg Val Asn Leu Asn Arg Ile Lys Gln Glu 80 50 55 82 ATG ATA CGC GAC AAT AAA GAC TTG GTG CGC TAT TCC ACC GAT GTC GGC 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 85 CTT GAC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GTT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 8 85 90 95 90 GAA GGC AAC CGT GTC GGC GTG AGC AGC AGC AGC AGC AGC AGC AGC AGC AG	62 (B) LOCATION: 12373	
67 Met Lys Pro Leu Gln Met Leu Pro Ile Ala Ala Leu Val Gly Ser Ile 68 1 10 15 70 TTC GGC AAT CCG GTC TTG GCA GCA GAT GAA GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Asp Glu Ala Ala Thr Glu Thr Thr 72 20 25 30 74 CCC GTT AAG GCA GAG ATA AAA GCA GTG CGC GTT AAA GGT CAG CGC AAT 75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn 6 35 40 45 78 GGC CCT GGG GCT GTG GAA CGC GTC AAC CTT AAC CGT ATC AAA CAA CAA 79 Ala Pro Ala Ala Val Glu Arg Val Asn Leu Asn Arg Ile Lys Gln Glu 80 50 55 60 82 ATG ATA CGC GAC AAT AAA GAC TTG GTG CGC TAT TCC ACC GAT GTC GGC 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 75 60 86 TTG AGC GAC AGC GGC CAT CAA AAA GGC TTT GCT GTT GCT GGC GTT 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 85 90 95 90 GAA GGC AAC CGT GTC GGC GTG AAC GGT GTA ACC CTG CTG GTG 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Phe Asp CTG CTG GAT 92 ATG ATA CAC CGT GTC GGC GTG AGC ATA GAC GGT GTA ACC CTG CTG GTG 93 GAA GGC AAC CTG TGT GGC GTG AGC ATA GAC GGT GTA ACC CTG CTG GTG 94 TCC GAA GAA AAC CTG CTG TAC GCC CGT TAT TCC ACC GAT GTC GGC 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 100 105 110 43 94 TCC GAA GAA AAC TCC CTG TAC GCC GCT TAT GGC AAC TTC AAC ACC TCG 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 115 120 125 120 125 120 130 135 140 136 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 140 145 150 150 155 160 160 AAT TAC CAA ACG CTG CAA GCC CGT GAT TTG GCT GGC GGC GGT GTG 180 140 145 150 175 100 TTC GGC GTG ATG ATG AAC GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG AAC ACG CGC GAT GAC GCC GTG GAT GTG GAC AAC TTG GAC AAC GC GGT GAA GAC ATG GTG GAT GAC GCC GT	64 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:	
10	66 ATG AAA CCA TTA CAA ATG CTC CCT ATC GCC GCG CTG GTC G	GC AGT ATT 48
70 TTC GGC AAT CCG GTC TTG GCA GCA GAT GAA GCT GCA ACT GAA ACC ACA 71 Phe Gly Asn Pro Val Leu Ala Ala Asp Glu Ala Ala Thr Glu Thr Thr 72 20 25 30 74 CCC GTT AAG GCA GAG ATA AAA GCA GTG CGC GTT AAA GGT CAC GCC AAT 75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn 76 35 40 45 78 GCG CCT GCG GCT GTG GAA CGC GTC AAC CTT AAC CGT ATC AAA CAA GAA 79 Ala Pro Ala Ala Val Glu Arg Val Arg Lu Asn Leu Lys Gly Gln Arg Asn 80 50 50 82 ATG ATA CCC GAC AAT AAA GAC TTG GTG GCC TAT TCC ACC GAT GTC GGC 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 75 80 86 TTG AGC GAC AGC GCC CAT CAA AAA GGC TTT GCT GTT CGC GGC GTG 75 B0 86 TTG AGC GAC AGC GGC CCC CAT CAA AAA GGC TTT GCT GTT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 90 GAA GGC ACC GCC GTG AGC GCC GTT AAC GGT GTT CCT GCC GGT 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 110 94 TCC GAA GAA AAC TCC CTG TAC GCC GCT TAT GGC AAC TCT AAC CTC CCT GAT 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96 115 120 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC AGC GGC GTG 480 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly 104 TCC GGC GTG AGC CCC GAA CTC GTA CGC AGT GGT GCA TTG GGC AGC GGT GTG 105 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG GGC GGC GGT GTG 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG GCC GGC GGT GTG 107 107 107 107 107 107 107 107 107 107	67 Met Lys Pro Leu Gln Met Leu Pro Ile Ala Ala Leu Val G	Sly Ser Ile
71 Phe Gly Asn Pro Val Leu Ala Ala Asp Glu Ala Ala Thr Glu Thr Thr 72	68 1 5 10	15
72	70 TTC GGC AAT CCG GTC TTG GCA GCA GAT GAA GCT GCA ACT G	GAA ACC ACA 96
72	71 Phe Gly Asn Pro Val Leu Ala Ala Asp Glu Ala Ala Thr G	Glu Thr Thr
75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn 76	72 20 25	30
76	74 CCC GTT AAG GCA GAG ATA AAA GCA GTG CGC GTT AAA GGT C	CAG CGC AAT 144
76	75 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly G	Gln Arg Asn
78 GCG CCT GCG GCT GTG GAA CGC GTC AAC CTT AAC CGT ATC AAA CAA GAA 79 Ala Pro Ala Ala Val Glu Arg Val Asn Leu Asn Arg Ile Lys Gln Glu 80 50 55 60 82 ATG ATA CGC GAC AAT AAA GAC TTG GTG CGC TAT TCC ACC GAT GTC GGC 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 76 80 86 TTG AGC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GTT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 85 90 95 95 90 GAA GGC AAC CGT GTC GGC GTG AGC ATA GAC GGT GTA AAC CTG CCT GAT 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 110 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA GGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GGA TTG GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 150 160 105 160 106 AAT TAC CAA ACC CTG GAA GGC CGT GAT TTG CTG TTG GGC GGC GGT GTG 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATC AAC ACG CTG GAT GAC AGC ACC AGC CAA TGC 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GTT TTC GAT GAC GGC CGT TTC AGC AGC CGC GTG GAA TGC 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 205 118 TTG CTG TAT TCG CAA CGC GCC GGC CAT GAA ACC CGC GTG GAA TGC 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 220 210 220 220 CGC GGC GTAT CCG GTA GAG GGC GGC GGT AAC GGC GGC GTG 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		-
79 Ala Pro Ala Ala Val Glu Arg Val Asn Leu Asn Arg Ile Lys Gln Glu 50 55 60 22 ATG ATA CGC GAC AAT AAA GAC TTG GTG CGC TAT TCC ACC GAT GTC GGC 240 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 70 80 86 TTG AGC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GTC GGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 95 90 95 90 GAA GGC AAC CGT GTC GGC GTG AGC ATA GAC GGT GTA AAC CTG CCT GAT 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 110 94 TCC GAA GAA AAC TGC CTG TAC GCC GGT TAT GGC AAC TTC AAC AGC TCG 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 104 145 150 155 160 105 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GGC AGC TTG 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG GCA GGC GGT GTG 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG GAT GAC GGT TAC AGC ACG CGT AAC CTG GAT TGG 114 ACA AAT ACC CTC GGT TTC GGT GTG AGC ACG CGC GTG GAT TGG 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGC ACG CGC GTG GAT GGC 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 205 118 TTG CTG TAT CGC CAG GGC CGT GAA GCC CGT GAA ACC GGC GGC GAC 118 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 215 220 121 And ACG GCC GGT ATC CGC GGT AAC AGG GCC GGT AAC ACC GGT AAC ACC GGC GGC AAC 122 CGC GGC TAT CCG GAT GAC GGC GGT AAC ACG AAT ATC CGC GGT 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly	78 GCG CCT GCG GCT GTG GAA CGC GTC AAC CTT AAC CGT ATC A	AAA CAA GAA 192
80		
82 ATG ATA CGC GAC AAT AAA GAC TTG GTG CGC TAT TCC ACC GAT GTC GGC 83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 75 80 86 TTG AGC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GTT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 85 90 95 90 GAA GGC AAC CGT GTC GGC GTG AGC ATA GAC GGT GTA AAC CTG CCT GAT 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 110 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCC 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GAT GGC GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 155 160 106 AAT TAC CAA ACC CTG CAA GGC CGT GAT TTG CTG GAC GAC AGC CAA 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Lu Lay Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC AGC CGC GTG GAT GGT 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 1140 185 190 115 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GTG GAT GCT 115 180 190 115 190 116 195 185 120 200 121 180 181 180 185 120 200 121 180 181 180 181 180 181 180 181 180 181 180 181 180 181 180 180		- 4 - ·
83 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly 84 65 70 75 80 86 TTG AGC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GCT GTT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 85 90 95 90 GAA GGC AAC CGT GTC GGC GTG AGC ATA GAC GGT GTA AAC CTG CCT GAT 336 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 110 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 384 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GGT TTG GGC GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 155 160 105 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC AGC CGC GTG GAA TGG 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGC AGC CGC GTG GAT TGG 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Ash ASP Arg Val Asp Ala Ala 116 195 200 117		SAT GTC GGC 240
84 65 70 70 75 80 86 TTG AGC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GTT CGC GGC GTG 288 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 85 90 95 90 GAA GGC AAC CGT GTC GGC GTG AGC ATA GAC GGT GTA AAC CTG CCT GAT 336 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 100 105 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 384 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 432 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 480 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Val 104 145 150 155 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC AGC AGC AGC GAT GGA TGG GAT GTG 119 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTG GAT TTC GGT GTG AGT AAC GAC CGT GAT GGC GTG GAT GCT GAT GGC GGC GTG GTG GAT GTG AAC AGC CTG GAT TTG GAC GAC AGC CAC AGC CAC 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 205 118 TTG CTG TAT TCG CAA CGG CGC GGC GAC CAT GAA ACC GAA AGC GCG GAC AGC AAC 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Asn Ile Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		
86 TTG AGC GAC AGC GGC CGC CAT CAA AAA GGC TTT GCT GTT CGC GGC GTG 87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88		
87 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val 88 85 90 95 90 GAA GGC AAC CGT GTC GGC GTG AGC ATA GAC GGT GTA AAC CTG CCT GAT 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 110 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GGC GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 155 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG GAC GAC AGG CAA 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 110 TCC GGC GTG ATG ATG AAA AAC GGT TAC AGC ACG CGT AAC CGT GAA TGG 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GAT GCT GAT 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 205 118 TTG CTG TAT TCG CAA CGG CGC GGC CGT GAT AAC CGC GAT GAC GCT GAT 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 215 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACC GAT ACC GGT GTC 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		
88		
90 GAA GGC AAC CGT GTC GGC GTG AGC ATA GAC GGT GTA AAC CTG CCT GAT 91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 92 100 105 110 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 155 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC ACG CGT AAC CGT GAA TGG 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GGC GGT GGT GCT 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 205 118 TTG CTG TAT TCG CAA CGG CGC GGC GGT GAA ACC GAA ACC GGC GGC GAC 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 210 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACC AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		
91 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp 100 105 110 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 384 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 432 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 480 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 155 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 528 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 165 170 175 110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC ACG CGT AAC CGT GAA TGG 576 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 122 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GTG GAT GCT GCT 155 190 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 166 195 200 205 118 TTG CTG TAT TCG CAA CGC CGC GGC GGT AAC CGA AGC CGC GAC GCC AAC 672 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACC GAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		
92 100 105 105 110 94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 384 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 115 120 125 98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 432 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 480 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 155 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 528 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC AGC CGT AAC CGT GAA TGG 576 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GTG GAT GCT GCT 624 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 205 118 TTG CTG TAT TCG CAA CGG CGC GGC CAT GAA ACC GAA AGC GCG GAC AAC 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACC AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		
94 TCC GAA GAA AAC TCG CTG TAC GCC CGT TAT GGC AAC TTC AAC AGC TCG 95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96		-
95 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser 96		
96		
98 CGT TTG TCT ATC GAC CCC GAA CTC GTA CGC AAT ATT GAA ATC GTG AAG 99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 150 155 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 528 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC ACG CGT AAC CGT GAA TGG 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GTG GAT GCT GCT 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 205 118 TTG CTG TAT TCG CAA CGG CGC GGC CAT GAA ACC GAA AGC GCG GGC AAC 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 215 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		Asn Ser Ser
99 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys 100 130 135 140 102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145 150 150 155 160 106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 528 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108 165 170 175 110 TTC GGC GTG ATG AAA AAC GGT TAC AGC ACG CGT AAC CGT GAA TGG 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112 180 185 190 114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GTG GAT GCT GCT 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116 195 200 200 205 118 TTG CTG TAT TCG CAA CGG CGC GGC CAT GAA ACC GAA AGC GCG GGC AAC 672 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 215 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GGA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		
100		
102 GGC GCA GAC TCT TTC AAT ACC GGC AGT GGT GCA TTG GGC GGC GGT GTG 103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Val 104 145		lle Val Lys
103 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Gly Val 104 145		
104 145		
106 AAT TAC CAA ACG CTG CAA GGC CGT GAT TTG CTG TTG GAC GAC AGG CAA 528 107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108		
107 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Leu Asp Asp Arg Gln 108		
108		
110 TTC GGC GTG ATG ATG AAA AAC GGT TAC AGC ACG CGT AAC CGT GAA TGG 576 111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112		
111 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp 112		
112		
114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GTG GAT GCT GCT 115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116		Arg Glu Trp
115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala 116	112 180 185	190
116 195 200 205 118 TTG CTG TAT TCG CAA CGG CGC GGC CAT GAA ACC GAA AGC GCG GGC AAC 672 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 215 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly	114 ACA AAT ACC CTC GGT TTC GGT GTG AGT AAC GAC CGC GTG	GAT GCT GCT 624
118 TTG CTG TAT TCG CAA CGG CGC GGC CAT GAA ACC GAA AGC GCG GGC AAC 119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 215 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly	115 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val	Asp Ala Ala
119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn 120 210 215 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly	116 195 200 205	
120 210 215 220 122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly	118 TTG CTG TAT TCG CAA CGG CGC GGC CAT GAA ACC GAA AGC	GCG GGC AAC 672
122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly	119 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser	Ala Gly Asn
122 CGC GGC TAT CCG GTA GAA GGT GCG GGT AAA GAA ACG AAT ATC CGC GGT 720 123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		
123 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly		ATC CGC GGT 720
	124 225 230 235	240

Input Set : N:\Crf3\RULE60\09665358.raw
Output Set: N:\CRF4\09202002\I665358.raw

								CCG									768
	Ser	Ala	Arg	СТĀ		Pro	Asp	Pro	Ser	_	His	глг	туг	His		Pne	
128					245	m. m	~~~	3.00		250		C3.C	000	3.00	255	663	016
								ATC									816
	Leu	GIY	гÃг		Ата	туг	GIN	Ile		Asp	ASI	HIS	Arg		GIY	Ala	
132	mac	ama	220	260	CA C	CA C	ccc	C N III	265	ma c	N CC	cmm	C 3 3	270	mcm	mam	864
								CAT His									004
136	261	ьęи	275	GLY	GIII	GIII	GIY	280	ASII	1 Y 1	1111	val	285	GIU	261	TÄT	
	AAC	CTIC		ССТ	ጥርጥ	ጥርር	TGG	CGC	GDD	GCC	СДТ	GAC		AAC	ΔGΔ	CGG	912
								Arg									312
140		290			501	001	295	9	014			300			5	5	
	CGC		GCC	AAC	CTC	ттт		GAA	TGG	ATG	CCT		TCA	AAT	TGG	TTG	960
								Glu									
	305					310	-		•		315	•			-	320	
146	TCG	TCT	TTG	AAG	GCG	GAC	TTC	GAT	TAT	CAG	AAA	ACC	AAA	GTG	GCG	GCG	1008
147	Ser	Ser	Leu	Lys	Ala	Asp	Phe	Asp	Tyr	Gln	Lys	Thr	Lys	Val	Ala	Ala	
148				-	325	_		_	_	330	-				335		•
150	ATT	AAC	AAA	GGT	TCG	TTC	CCG	ACG	AAT	TAC	ACC	ACA	TGG	GAA	ACT	GAG	1056
151	Ile	Asn	Lys	Gly	Ser	Phe	Pro	Thr	Asn	Tyr	Thr	Thr	Trp	Glu	Thr	Glu	
152				340					345					350			
154	TAC	CAT	AAA	AAG	GAA	GTT	GGC	GAA	ATA	TAC	AAC	CGC	AGC	ATG	GAC	ACC	1104
155	${\tt Tyr}$	His	Lys	Lys	Glu	Val	Gly	Glu	Ile	Tyr	Asn	Arg	Ser	Met	Asp	Thr	
156			355					360					365				
158	CGA	TTC	AAA	CGT	TTT	ACT	TTG	CGT	TTG	GAC	AGC	CAT	CCG	TTG	CAA	CTC	1152
159	Arg	Phe	Lys	Arg	Phe	Thr	Leu	Arg	Leu	Asp	Ser	His	Pro	Leu	Gln	Leu	
160		370					375					380					
								TCG									1200
	_	Gly	Gly	Arg	His	_	Leu	Ser	Phe	Lys		Phe	Ala	Ser	Arg		
	385					390					395					400	1010
								GAC									1248
	Asp	Pne	GIU	Asn		Asn	Arg	Asp	Asp	_	туг	Pne	ser	GIY	Arg 415	vai	
168	C III III	CCA	7 00	7.00	405	ъ c m	A IDC	CAC	C A M	410	CITIC	***	7.00	7.00		ma c	1296
								CAG Gln									1290
172	Val	AIG	TIII	420	3e1	sei	116	GIII	425	PIO	Val	пуъ	1111	430	ASII	тут	
	CCT	ጥጥር	ሞሮል		ጥርጥ	GAC	$C\Delta\Delta$	ATT		TGG	A A C	GAC	стс		ΔСΤ	AGC	1344
								Ile									1011
176	017	1110	435	шеч	001	шър	0111	440	01			шър	445	11.0		DOI	
	CGC	GCA		ATC	CGT	TAC	GAC	CAC	ACC	AAA	ATG	ACG		CAG	GAA	TTG	1392
								His									
180	5	450	2		,	-1-	455			-1-		460					
	AAT		GAG	TGT	CAT	GCT	TGT	GAC	AAA	ACA	CCA	CCT	GCA	GCC	AAC	ACT	1440
								Asp									
184				_		470	-	•	-		475					480	
186	TAT	AAA	GGC	TGG	AGC	GGT	TTT	GTC	GGC	TTG	GCG	GCG	CAA	CTG	AAT	CAG	1488
								Val									
188		~	_	-	485	_			_	490					495		
190	GCT	TGG	CGT	GTC	GGT	TAC	GAC	ATT	ACT	TCC	GGC	TAC	CGT	GTC	CCC	AAT	1536

Input Set : N:\Crf3\RULE60\09665358.raw
Output Set: N:\CRF4\09202002\I665358.raw

	Ala	Trp	Arg		Gly	Tyr	Asp	Ile		Ser	Gly	Tyr	Arg		Pro	Asn		
192				500					505			maa		510	maa	ama	150	
							ACT										158	4
	Ala	Ser		Val	Tyr	Phe	Thr	_	Asn	His	GLY	Ser		Asn	Trp	ьeu		
196			515					520					525					_
							GCC										163	2
199	Pro		Pro	Asn	Leu	Lys	Ala	Glu	Arg	Ser	Thr		His	Thr	Leu	Ser		
200		530					535					540						_
							AAA										168	0
203	Leu	Gln	Gly	Arg	Ser	Glu	Lys	Gly	Met	Leu	Asp	Ala	Asn	Leu	\mathtt{Tyr}			
204	545					550					555					560		
							CTG										172	8
207	Ser	Asn	Tyr	Arg	Asn	Phe	Leu	Ser	Glu	Glu	Gln	Lys	Leu	Thr	Thr	Ser		
208					565					570					575			
210	GGC	ACT	CCC	GGC	TGT	ACT	GAG	GAA	AAT	GCT	TAC	TAC	AGT	ATA	TGC	AGC	177	6
211	Gly	Thr	Pro	Gly	Cys	Thr	Glu	Glu	Asn	Ala	Tyr	Tyr	Ser	Ile	Cys	Ser		
212				580					585					590				
214	GAC	CCC	TAC	AAA	GAA	AAA	CTG	GAT	TGG	CAG	ATG	AAA	AAT	ATC	GAC	AAG	182	4
215	Asp	Pro	Tyr	Lys	Glu	Lys	Leu	Asp	Trp	Gln	Met	Lys	Asn	Ile	Asp	Lys		
216			595					600					605					
218	GCC	AGA	ATC	CGC	GGT	ATC	GAG	CTG	ACA	GGC	CGT	CTG	AAT	GTG	GAC	AAA	187	2
219	Ala	Arg	Ile	Arg	Gly	Ile	Glu	Leu	Thr	Gly	Arg	Leu	Asn	Val	Asp	Lys		
220		610		_	_		615					620						
222	GTA	GCG	TCT	TTT	GTT	CCT	GAG	GGC	TGG	AAA	CTG	TTC	GGC	TCG	CTG	GGT	192	0
							Glu											
	625					630		-	-	•	635		-			640		
		GCG	AAA	AGC	AAA	CTG	TCG	GGC	GAC	AAC	AGC	CTG	CTG	TCC	ACA	CAG	196	8
							Ser									_		
228	-4-				645			-	•	650					655			
	CCG	CTG	AAA	GTG	ATT	GCC	GGT	ATC	GAC	TAT	GAA	AGT	CCG	AGC	GAA	AAA	201	6
							Gly											
232			•	660			•		665	•				670		-		
234	TGG	GGC	GTA	TTC	TCC	CGC	CTG	ACC	TAT	CTG	GGC	GCG	AAA	AAG	GTC	AAA	206	4
							Leu											
236	1		675			_		680	-		•		685	•		-		
	GAC	GCG	CAA	TAC	ACC	GTT	TAT	GAA	AAC	AAG	GGC	TGG	GGT	ACG	CCT	TTG	211:	2
							Tyr											
240		690		-1-			695				2	700	4		•			
	CAG		AAG	СΤΆ	AAA	GAT	TAC	CCG	TGG	CTG	AAC		TCG	GCT	ТАТ	GTG	216	0
							Tyr											
	705	-12			-1-	710	-1-				715	-1-			-1-	720		
		САТ	ΔТС	ጥልሮ	GGC		TAC	ΔΔΔ	CCG	GTG		AAC	СТС	ACC	СТС		220	8
							Tyr										220	•
248	1110	113 P	1100	-1-	725	1 110	-1-	_, _	110	730	-,5	11011			735	9		
	GCG	GGC	стс	ጥልሮ		СТС	TTC	ΔAC	CGC		ጥ ል C	ACC	Δርጥ	TGG		TCC	225	6
							Phe										220	•
252	N.J.Cl	OTY	* GI I	740	no!!	⊥cu	1 110	HOII	745	כעב	-1-	T.11	T11T	750	115 P	501		
	СПС	CGC	CCT		ጥልጥ	AGC	TAC	ACC		ACC	ጥፈል	GCG	стс		CGC	САТ	230	4
							Tyr										230	-1
233	⊥eu	MT A	GTA	пец	TAT	261	TAT	SET	TIIT	TIIT	Wall	ита	AGT	rsh	AT 9	voh		

Input Set : N:\Crf3\RULE60\09665358.raw
Output Set: N:\CRF4\09202002\1665358.raw

```
256
           755
                                760
                                                    765
258 GGC AAA GGC TTA GAT CGC TAC CGC GCC CCA GGC CGC AAT TAC GCC GTA
                                                                         2352
259 Gly Lys Gly Leu Asp Arg Tyr Arg Ala Pro Gly Arg Asn Tyr Ala Val
       770
                            775
262 TCG CTG GAA TGG AAG TTT TAA
                                                                         2373
263 Ser Leu Glu Trp Lys Phe
268 (2) INFORMATION FOR SEQ ID NO: 2:
        (i) SEQUENCE CHARACTERISTICS:
270
             (A) LENGTH: 790 amino acids
271
             (B) TYPE: amino acid
272
             (D) TOPOLOGY: linear
273
       (ii) MOLECULE TYPE: protein
275
       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
279 Met Lys Pro Leu Gln Met Leu Pro Ile Ala Ala Leu Val Gly Ser Ile
                    5
                                         10
282 Phe Gly Asn Pro Val Leu Ala Ala Asp Glu Ala Ala Thr Glu Thr Thr
                20
                                     25
285 Pro Val Lys Ala Glu Ile Lys Ala Val Arg Val Lys Gly Gln Arg Asn
            35
                                 40
288 Ala Pro Ala Ala Val Glu Arg Val Asn Leu Asn Arg Ile Lys Gln Glu
                             55
291 Met Ile Arg Asp Asn Lys Asp Leu Val Arg Tyr Ser Thr Asp Val Gly
294 Leu Ser Asp Ser Gly Arg His Gln Lys Gly Phe Ala Val Arg Gly Val
                                         90
                    85
297 Glu Gly Asn Arg Val Gly Val Ser Ile Asp Gly Val Asn Leu Pro Asp
                                    105
300 Ser Glu Glu Asn Ser Leu Tyr Ala Arg Tyr Gly Asn Phe Asn Ser Ser
          115
                                120
                                                    125
303 Arg Leu Ser Ile Asp Pro Glu Leu Val Arg Asn Ile Glu Ile Val Lys
     130
                           135
306 Gly Ala Asp Ser Phe Asn Thr Gly Ser Gly Ala Leu Gly Gly Val
307 145
                       150
                                            155
309 Asn Tyr Gln Thr Leu Gln Gly Arg Asp Leu Leu Asp Asp Arg Gln
                   165
                                        170
312 Phe Gly Val Met Met Lys Asn Gly Tyr Ser Thr Arg Asn Arg Glu Trp
                                    185
315 Thr Asn Thr Leu Gly Phe Gly Val Ser Asn Asp Arg Val Asp Ala Ala
           195
                                200
318 Leu Leu Tyr Ser Gln Arg Arg Gly His Glu Thr Glu Ser Ala Gly Asn
                            215
321 Arg Gly Tyr Pro Val Glu Gly Ala Gly Lys Glu Thr Asn Ile Arg Gly
                        230
                                            235
324 Ser Ala Arg Gly Ile Pro Asp Pro Ser Lys His Lys Tyr His Asn Phe
                   245
                                        250
327 Leu Gly Lys Ile Ala Tyr Gln Ile Asn Asp Asn His Arg Ile Gly Ala
                                    265
330 Ser Leu Asn Gly Gln Gln Gly His Asn Tyr Thr Val Glu Glu Ser Tyr
```

VERIFICATION SUMMARY DATE: 09/20/2002 PATENT APPLICATION: US/09/665,358 TIME: 09:58:25

Input Set : N:\Crf3\RULE60\09665358.raw
Output Set: N:\CRF4\09202002\I665358.raw

L:30 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]

L:31 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]